

IN THE CLAIMS:

Please rewrite claims 1, 2, 6, 7, 11, 25, 28, 29, 31 and 40-46 as follows (a marked-up version of these claims showing deletions crossed out and additions underlined is attached hereto).

1. (Rewritten) A method of developing a system for determining the occupancy state of a seat in a passenger compartment of a vehicle, comprising the steps of:

mounting transducers in the vehicle;

forming at least one database comprising multiple data sets, each of the data sets representing a different occupancy state of the seat and being formed by receiving data from the transducers while the seat is in that occupancy state, and processing the data received from the transducers; and

creating a first, trained pattern recognition algorithm from the at least one database capable of producing an output indicative of the occupancy state of the seat upon inputting a data set representing an occupancy state of the seat.

2. (Rewritten) The method of claim 1, wherein said step of creating a first, trained pattern recognition algorithm from the at least one database comprises the steps of:

inputting the database into an algorithm generating program, and

running the algorithm-generating program to produce the first algorithm.

10/1. (Rewritten) The method of claim 1, further comprising the steps of:
inputting data sets into the first, trained pattern recognition algorithm to obtain a plurality of output data, and

creating a second algorithm for combining a plurality of output data to form a new output indicative of the occupancy state of the seat.

11/1. (Rewritten) The method of claim 10, further comprising the step of:
combining the plurality of output data from the first, trained pattern recognition algorithm using a low pass filter.

15/1. (Rewritten) The method of claim 1, wherein the at least one database comprises a plurality of databases, further comprising the step of:

providing a different distribution of occupancy states for at least one of the databases.

Q6 25. (Rewritten) The method of claim 1, wherein said processing step comprises the step of converting the analog data from the transducers to digital data and combining the digital data from a plurality of the transducers to form a vector comprising a string of data from each of the transducers, the first, trained pattern recognition algorithm being created such that upon inputting a vector from a new data set, the first, trained pattern recognition algorithm will produce an output representing the occupancy state of the vehicle seat.

Q7 33/28. (Rewritten) A method of developing a system for determining the occupancy state of the vehicle seat in the passenger compartment of a vehicle, comprising the steps of:

forming data sets by obtaining data representative of various occupying objects at various positions in the passenger compartment and operating on at least a portion of the data to reduce the magnitude of the largest data values in a data set relative to the smallest data values; and

forming a database comprising multiple data sets; and

creating a trained pattern recognition algorithm from the database capable of producing an output indicative of the occupancy state of the vehicle seat upon inputting a data set representing an occupancy state of the seat.

34/33. (Rewritten) The method of claim 28, wherein the step of operating on at least a portion of the data comprises the step of using an approximate logarithmic transformation function.

Q8 36/35. (Rewritten) The method of claim 30, further comprising the step of:
creating some of the occupancy states of the seat using live human beings.

Q9 28/40. (Rewritten) The method of claim 1, further comprising the step of:
creating at least one additional algorithm from the at least one database capable of producing in combination with the first, trained pattern recognition algorithm an output indicative of the occupancy state of the seat.

29/28. (Rewritten) The method of claim 40, wherein at least one of the first, trained pattern recognition algorithm and the at least one additional algorithm identifies the category of the occupying item

of the seat and another of the first, trained pattern recognition algorithm and the at least one additional algorithm determines the location within the passenger compartment of the occupying item of the seat.

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~~42.~~ (Rewritten) The method of claim ~~28~~ 40, wherein at least one of the first, trained pattern recognition algorithm and the at least one additional algorithm uses a neural network trained for a large number of training cycles and at least one other of the first, trained pattern recognition algorithm and the at least one additional algorithm is a neural network trained for a substantially smaller number of training cycles.

~~31~~
~~43.~~ (Rewritten) The method of claim ~~28~~ 40, wherein at least one of the first, trained pattern recognition algorithm and the at least one additional algorithm is trained on a subset of the data in the at least one database and at least one other of said algorithms is trained on a different subset of the data in the at least one database.

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~~39~~
~~44.~~ (Rewritten) The method of claim ~~28~~ 40, wherein the data set is inputted first into one of the first, trained pattern recognition algorithm and the at least one additional algorithm which determines which of the other algorithms will further process the data set.

~~46~~
~~45.~~ (Rewritten) A method of developing a system for determining the occupancy state of a passenger compartment seat of a vehicle, comprising the steps of:

mounting a plurality of ultrasonic transducers in the vehicle;

receiving an analog signal from each of the transducers;

processing the analog signals from the transducers to form a data set comprising multiple data values from each transducer representative of the occupancy state of the vehicle, said data processing comprising the steps of demodulation, sampling and digitizing of the transducer data to create a data set of digital data;

forming a database comprising multiple data sets; and

creating at least one trained pattern recognition algorithm from the database capable of producing an output indicative of the occupancy state of the seat upon inputting a new data set representing an occupancy state of the seat.

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~~46.~~ (Rewritten) The method of claim ~~46~~ 45, further comprising the step of: